



## **FORMATION ALGORITHMS FOR MULTIPLE MOBILE ROBOTS BASED ON VISION DETECTION**

Zhihong Liang<sup>1</sup>, \*Hongwei Gao<sup>2</sup>

<sup>1</sup>School of Equipment Engineering, Shenyang Ligong University, Private bag 110159  
Shenyang, China

<sup>2</sup>School of Automation and Electrical Engineering, Shenyang Ligong University, Private bag  
110159Shenyang, China

\*Email: ghw1978@sohu.com

---

*Submitted: Dec.21, 2015*

*Accepted: Oct.12, 2016*

*Published: Dec.1, 2016*

---

*Abstract- Unmanned operating system is applied to various fields. The disadvantages of the single unmanned system, such as its own limitations, poor flexibility, poor ability, low efficiency, cannot be overcome, as the complexity of the tasks continue to increase. As a result, the cooperative operation system of multi-unmanned platforms is gradually regarded as the main trend of the development of unmanned systems. A novel multiple mobile robots co-avoidance scheme and an improved linear formation algorithm are proposed in this paper. The basic principle and programming steps of the algorithm are described in detail. The improved linear formation algorithm is used for simulation studies. The validity and practicability of the line formation algorithm are verified.*

**Index terms:** Multi-unmanned system; Collaboration; Vision Detection; Formation.